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PCF 6/21/2003

AD 7/23/02 claim

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priority

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Claims

5,746,948

1. A method of preparing a membrane having an affinity for biomolecules comprising the steps:

- Rejoin 5 102
- I 10
- 15
- (a) providing a microporous membrane;
- (b) reacting said membrane of step (a) with a reagent containing a functional group to form a functionalized membrane containing reactive functional groups on the surfaces thereof;
- (c) contacting said functionalized membrane of step (b) with a solution containing an affinity ligand to couple said ligand to said functional group to form a biologically active membrane;
- (d) washing said biologically active membrane with a washing solution containing a volatile organic compound that is miscible with said washing solution; and
- (e) drying said biologically active membrane.
- Ex 2 + 3
- Ex 2 + 3

2. The method of claim 1 wherein said functional group of step (b) is an aldehyde.

3. The method of claim 1 wherein said affinity ligand of step (c) is selected from the group consisting of thiophiles; hydrophobes; reversed phase ligands; dyes; low molecular weight charged or non-charged organic molecules; amino acids and analogs thereof; coenzymes, cofactors and analogs thereof; substrates and analogs thereof; endocrine and exocrine substances; enzyme substrates, enzyme inhibitors and analogs thereof; fatty acids, fatty acid derivatives, conjugated fatty acids and analogs thereof; nucleic acids; monomers and analogs and derivatives thereof; polymers and oligopolymers and analogs and derivatives thereof; high molecular weight carbohydrates; glycolic conjugates; proteins and oligomers, subunits and parts thereof; peptides, polypeptides and analogs and derivatives thereof; lectine; antibodies and parts thereof; fusion proteins; haptens; enzymes and subunits and parts thereof; structural proteins; receptors and parts thereof; xenobiotics; pharmaceuticals and pharmaceutically active substances; alkaloids; antibiotics; and biomimicking substances.

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Col 5 + Col 6

54-56 24-65

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4+3

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4. The method of claim 3 wherein said affinity ligand is Protein A. 11

5. The method of claim 1 wherein said washing solution of step (d) is aqueous-based.

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6. The method of claim 5 wherein said washing solution is a phosphate buffered saline solution.

7. The method of claim 6 wherein said volatile organic compound of step (c) is glycerine.

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8. The method of claim 1 wherein step (c) is conducted at ambient temperature.

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9. The method of claim 1 wherein said microporous membrane of step (a) is a polymeric membrane selected from the group consisting of cellulose acetate, cellulose nitrate, polyamide, polyethersulfone, polypropylene and polyvinylidene fluoride.

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10. The method of claim 9 wherein said microporous membrane has an average pore diameter of from about 0.01 to about 15 microns and a thickness of from about 100 to about 500 microns.

11. The membrane product of the method of any of claims 1-4.

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12. The membrane product of claim 11 stored in a dry state in a substantially anaerobic atmosphere. Ex4

13. At least one of the membrane product of claim 11 in a filtration housing having a fluid inlet and a fluid outlet wherein said at least one membrane product is situated between said inlet and said outlet.

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14. The membrane product of claim 13 wherein said filtration housing contains three of said membrane products.

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